

Technical description

Steel gate valves are designed and manufactured to ensure maximum durability and reliability. Valves meet requirements of API 600, API 6D and ASME B 16.34 standards.

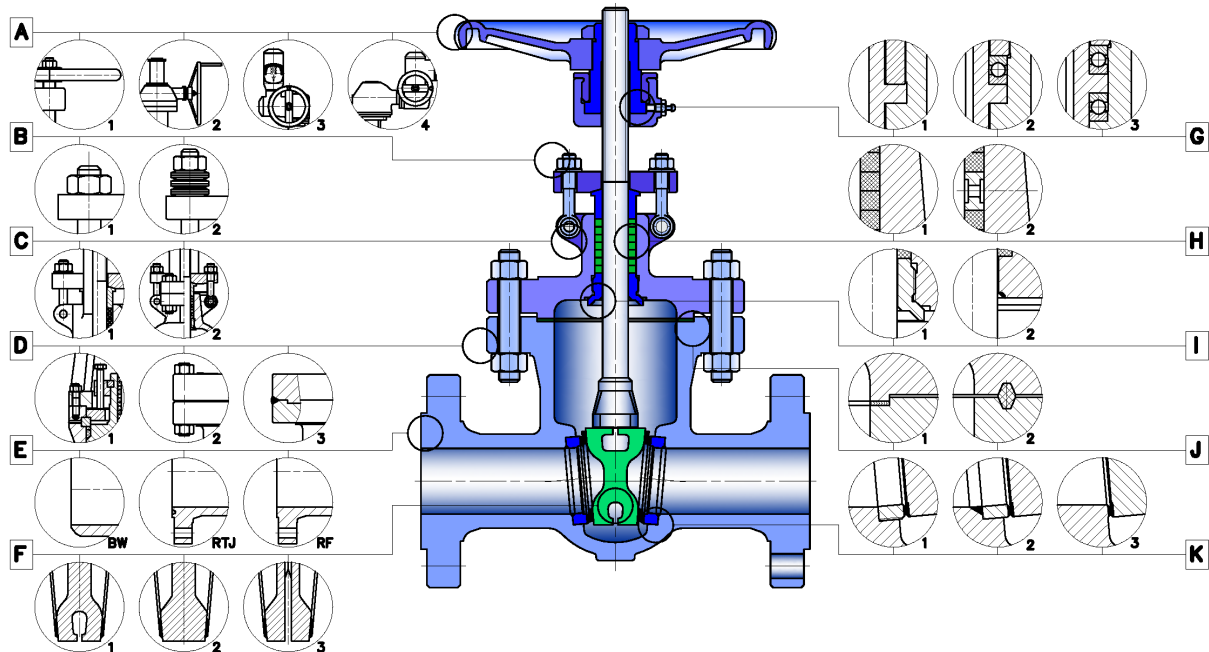
Material specification

Gate valves are made from carbon, alloy and stainless steels. Material execution of gate valves can be selected according to the customer's request so that it suits as much as possible valves service conditions.

APPLICATION

The gate valves can be used for water, inorganic or organic acids, steam, oil, air, hydrocarbons, crude oil and crude oil products.

STRUCTURAL DESIGN OF GATE VALVE



A - Control

- hand-wheel
- hand-wheel with gearbox
- electric actuator
- electric actuator with gearbox

B - Gland compression

- in case of valve operation with cyclic changes in pressure or at high pressures and temperatures, the gland compression by means of Belleville springs, which secure a constant pre-stress in packing, is preferred.

C - Yoke execution

- Yoke is the separate detail fixed by bolts to a bonnet
- Yoke as integral part of the bonnet (yoke-bonnet)

D - Bonnet execution

- Pressure seal bonnet is used for high pressures, temperatures and operation with cyclic changes of pressure
- The bolted bonnet to the body
- The bonnet welded to the body

E - Connection into piping

- Flanged
 - with rough or smooth raised face
 - with male / female facing
 - with tongue / groove facing
 - with RTJ
- Welding-on
 - with welding-ends according to customer's requirements

F - Wedge execution

- Solid
- Flexible
- Split wedge

G - Bedding of stem nut

- friction (sliding) type
- combination of sliding and rolling stem nut bedding
- bedding of stem nut between two axial rolling bearings

H - Execution of stuffing box packing

- standard
- double steam packing with lantern ring – shall be chosen in dependence on operating conditions.

I - Back seat execution

- screwed into the bonnet
- integral part of the bonnet

J - Bonnet sealing

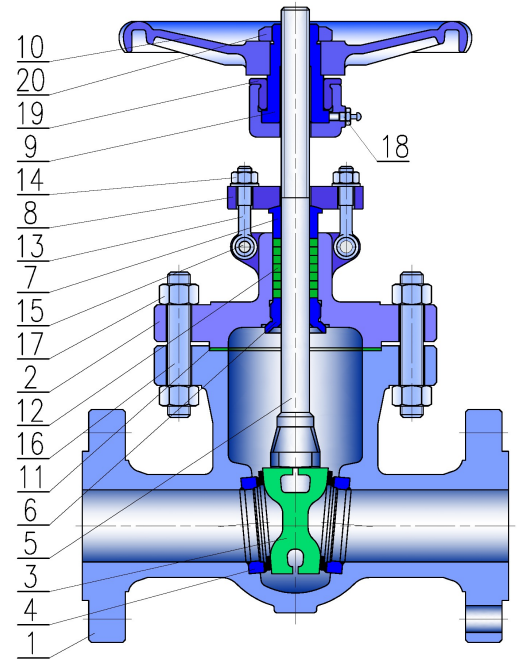
- class 150, 300 – by gasket for male-female body / bonnet connection
- Class 600, 900 - by RTJ ring
- Class 1500, 2500 -by pressure seal bonnet

K - Seats execution

- the seats are screwed into the body
- the seats are inserted into the body and welded on
- The seats are welded on the body

MATERIAL SPECIFICATION
Basic standards for design

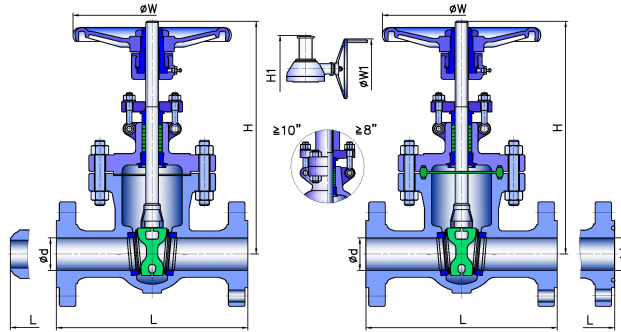
Basic design.....	API 600, API 6D, ASME B16.34
Building lengths.....	ANSI B16.10, EN 558-2, EN 12982
Flange dimension.....	ANSI B 16.5, ANSI B16-47A, EN 1759-1
Dimension of welding-on ends.....	ANSI B16.25, EN 12627
Testing.....	API 598, EN 12266-1
Pressure-temperature rating.....	ASME B16.34, EN 12516-1
Special.....	NACE MR-0175



Pos	Designation	WCB	LCC	WC6	C5	C12	CF8 / 304	CF8M / 316	A351 CF3	A351 CF3M
1	Body	A216 WCB	A352 LCC	A217 WC6	A217 C5	A217 C12	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
2	Bonnet	A216 WCB	A352 LCC	A217 WC6	A217 C5	A217 C12	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
3	Wedge	A216 WCB + overlay	A352 LCC + overlay	A217 WC6 + overlay	A217 C5 + overlay	A217 C12 + overlay	A351 CF8 + overlay	A351 CF8M + overlay	A351 CF3 + overlay	A351 CF3M + overlay
4	Seat	A105 + overlay	A350 LF2 + overlay	A182 F5 + overlay	A182 F5 + overlay	A182 F5 + overlay	A351 CF8 + overlay	A351 CF8M + overlay	A351 CF3 + overlay	A351 CF3M + overlay
5	Stem	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L
6	Back seat	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
7	Stuffing box bushing	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F6a	A182 F304	A182 F316	A182 F304L	A182 F316L
8	Gland flange	A216 WCB	A352 LCC	A217 WC6	A217 C5	A217 C12	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M
9	Stem nut	A439 D2								
10	Hand wheel	cast iron								
11	Bonnet gasket	304 + graphite	304 + graphite	304 + graphite	304 + graphite	304 + graphite	304 + graphite	316 + graphite	304L + graphite	316 + graphite
12	Gland packing	graphite								
13	Eye bolt	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M
14	Nut	A194 2H	A194 4	A194 B8M	A194 B8M	A194 B8M	A194 8	A194 8M	A194 8	A194 8M
15	Pin	A36	A276 410	A276 410	A276 410	A276 410	304	316	304L	316L
16	Bonnet bolt	A193 B7	A320 L7	A193 B16	A193 B16	A193 B16	A193 B8	A193 B8M	A193 B8	A193 B8M
17	Nut	A194 2H	A194 4	A194 B8M	A194 B8M	A194 B8M	A194 8	A194 8M	A194 8	A194 8M
18	Grease nipple	Carbon steel								
19	Threaded bushing	Carbon steel								
20	Nut	Carbon steel								

Class 150, 300

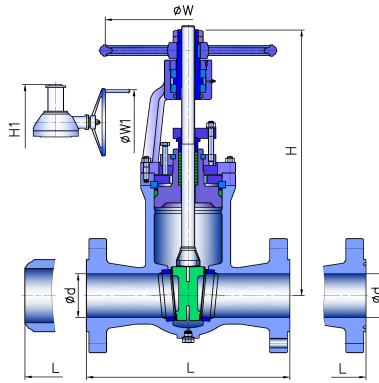
Class 600, 900



Diameter		CLASS 150										CLASS 300									
NPS	DN	L			d	H	H1	W	W1	weigh (kg)		L			d	H	H1	W	W1	weigh (kg)	
		RF	RTJ	BW						H.W.	G.O.	RF	RTJ	BW						H.W.	G.O.
1/2	15	108	119	108	14	195	-	120	-	4	-	140	151	140	14	198	-	120	-	6	-
3/4	20	117	130	117	19	210	-	120	-	5	-	152	165	152	19	215	-	140	-	7	-
1	25	127	140	127	25	240	-	140	-	7	-	165	178	165	25	245	-	160	-	10	-
1 1/2	40	165	178	165	38	395	-	200	-	14	-	190	203	190	38	300	-	200	-	21	-
2	50	178	191	216	51	400	-	200	-	19	-	216	232	216	51	420	-	200	-	26	-
2 1/2	65	191	203	241	64	435	-	200	-	27	-	241	257	241	64	446	-	200	-	31	-
3	80	203	216	283	76	515	-	250	-	34	-	283	298	283	76	537	-	250	-	49	-
4	100	229	241	305	102	595	-	280	-	49	-	305	321	305	102	619	650	280	310	74	101
5	125	254	267	381	127	725	-	280	-	63	-	381	397	381	127	722	750	300	310	99	127
6	150	267	279	403	152	780	820	300	310	78	105	403	419	403	152	806	835	350	310	131	187
8	200	292	305	419	203	975	1020	350	310	125	151	419	435	419	203	1000	1030	400	310	209	236
10	250	330	343	457	254	1150	1200	400	310	188	217	457	473	457	254	1240	1280	450	310	336	387
12	300	356	368	502	305	1380	1430	450	310	288	317	502	518	502	305	1425	1460	500	310	452	503
14	350	381	394	572	337	1545	1580	500	310	387	437	572	588	572	337	1585	1620	600	460	706	757
16	400	406	419	610	387	1733	1780	500	460	502	554	610	626	610	387	1790	1830	500	460	925	966
18	450	432	445	660	438	1915	1990	500	460	603	655	660	676	660	438	1960	2000	650	460	1133	1226
20	500	457	470	711	489	2122	2220	600	460	766	818	711	727	711	489	2158	2220	750	460	1347	1402
24	600	508	521	813	591	2520	2600	600	460	1009	1187	813	829	813	591	2576	2620	900	600	2125	2387
26	650	559	-	864	633	-	2800	-	600	-	1552	864	880	864	-	2850	-	600	-	3002	-
28	700	610	-	914	684	-	3050	-	600	-	1882	914	930	914	-	3080	-	600	-	3302	-
30	750	610	-	914	735	-	3130	-	600	-	2300	914	930	914	-	3180	-	600	-	3552	-
32	800	660	-	965	779	-	3280	-	600	-	2552	965	981	965	-	3300	-	600	-	4400	-
34	850	762	-	1016	830	-	3500	-	600	-	2952	1016	1032	1016	-	3550	-	600	-	5202	-
36	900	711	-	1016	874	-	3720	-	600	-	3390	874	890	874	-	3760	-	600	-	6052	-

Diameter		CLASS 600										CLASS 900									
NPS	DN	L			d	H	H1	W	W1	weigh (kg)		L			d	H	H1	W	W1	weigh (kg)	
		RF	RTJ	BW						H.W.	G.O.	RF	RTJ	BW						H.W.	G.O.
2	50	292	295	292	51	444	-	200	-	33	-	368	371	368	51	500	-	280	-	71	-
2 1/2	65	330	333	330	64	500	-	250	-	53	-	419	422	419	64	550	-	280	-	111	-
3	80	356	359	356	76	558	585	280	310	61	88	381	384	381	76	610	600	300	310	141	168
4	100	432	435	432	102	665	695	300	310	108	135	457	460	457	102	702	750	350	310	200	228
5	125	508	511	508	127	760	790	350	310	176	228	559	565	559	127	850	900	400	310	259	286
6	150	559	562	559	152	868	900	450	310	217	269	610	613	610	152	980	1060	500	460	359	411
8	200	660	664	660	203	1073	1110	500	310	399	452	737	740	737	203	1100	1140	650	460	551	602
10	250	787	791	787	254	1263	1300	650	460	606	658	838	841	838	254	1320	1370	700	460	1002	1102
12	300	838	841	838	305	1600	1650	700	460	852	894	965	968	965	305	1500	1560	900	460	1217	1312
14	350	889	892	889	337	1705	1750	900	460	1179	1234	1029	1039	1029	322	1900	19550	900	600	1600	1702
16	400	991	994	991	387	1835	1900	900	460	1515	1568	1130	1140	1130	373	2050	2100	900	600	2152	2332
18	450	1092	1095	1092	438	-	2020	-	600	-	1982	-	-	-	-	-	-	-	-	-	-
20	500	1194	1200	1194	489	-	2172	-	600	-	2462	-	-	-	-	-	-	-	-	-	-
24	600	1397	1407	1397	591	-	2650	-	600	-	3652	-	-	-	-	-	-	-	-	-	-

Class 1500, 2500



Diameter		CLASS 1500										CLASS 2500									
NPS	DN	L			d	H	H1	W	W1	weigh (kg)		L			d	H	H1	W	W1	weigh (kg)	
		RF	RTJ	BW						H.W.	G.O.	RF	RTJ	BW						H.W.	G.O.
2	50	368	371	368	51	510	-	280	-	70	-	451	454	451	42	530	580	280	310	100	130
2 1/2	65	419	422	419	64	560	-	300	-	110	-	508	514	508	52	580	630	300	310	150	180
3	80	470	473	470	76	620	670	350	310	175	202	578	584	578	62	650	700	350	310	245	275
4	100	546	549	546	102	728	770	400	310	270	300	673	683	673	87	750	800	400	310	390	420
5	125	673	676	673	127	870	920	450	310	378	405	794	807	794	96	900	960	500	460	550	580
6	150	705	711	705	144	1000	1070	500	460	520	575	914	927	914	131	1040	1100	600	460	780	835
8	200	832	841	832	192	1130	1180	750	460	820	915	1022	1098	1022	179	1150	1200	750	460	1260	1355
10	250	991	1000	991	239	1360	1410	900	600	1560	1750	1270	1292	1270	223	1400	1460	900	600	2380	2565
12	300	1130	1146	1130	287	-	1620	-	600	-	2120	1422	1445	1422	265	-	1660	-	600	-	3250
14	350	1257	1276	1257	315	-	2020	-	600	-	2600	-	-	-	-	-	-	-	-	-	-
16	400	1384	1407	1384	360	-	2180	-	600	-	3450	-	-	-	-	-	-	-	-	-	-

Forged execution CLASS 150 ÷ CLASS 2500

Basic standard for design

- Basic design.....API 602, ASME B16.34
- Building length.....ASME B16.10
- Flange dimension.....ASME B1.20.1
- Dimension of welded-on ends.....ASME B16.11
- Testing.....API 598, EN 12266-1
- Pressure-temperature rating.....ASME B16.34, EN 12516-1
- Special.....NACE MR-0175

CLASS	NPS	DN	L	d	S	H	W	NPT	(kg)
150 300 600 800	1/2	15	92	9.5	21.8	182	100	1/2	2
	3/4	20	111	12.7	27.1	208	100	3/4	2.5
	1	25	120	17.5	33.8	254	125	1	5
	1 1/4	32	120	23.8	42.6	290	160	1 1/4	6
	1 1/2	40	140	28.6	48.7	330	180	1 1/2	7
	2	50	178	36.5	61.1	372	200	2	12
900	1/2	15	92	9.5	21.8	182	100	1/2	2.5
	3/4	20	111	12.7	27.1	208	100	3/4	4.5
	1	25	120	17.5	33.8	254	125	1	6
	1 1/4	32	120	23.8	42.6	290	160	1 1/4	7
	1 1/2	40	140	28.6	48.7	330	180	1 1/2	11
1500	1/2	15	92	9.5	21.8	182	100	1/2	4
	3/4	20	111	12.7	27.1	208	100	3/4	4
	1	25	120	17.5	33.8	254	125	1	7
	1 1/4	32	120	23.8	42.6	290	160	1 1/4	9
	1 1/2	40	140	28.6	48.7	330	180	1 1/2	12
2500	1/2	15	127	11.5	21.8	214	138	1/2	5.5
	3/4	20	127	15	27.1	244	138	3/4	7
	1	25	127	19.5	33.8	276	138	1	10
	1 1/4	32	127	25	42.6	276	138	1 1/4	10
	1 1/2	40	210	28	48.7	337	172	1 1/2	19.5
	2	50	230	35	61.1	404	234	2	29

TYPE DESIGNATION

C09 2 YZ - M / A Class**C09 2** – Valve type – Gate valve**Y** – CONNECTION INTO PIPELINE

- 1...Flange
- 2...Welded-on ends
- 7...Threaded NPT
- 8...Combined

Z – CONTROL METHOD

- 1...By hand wheel
- 2...By hand wheel with gear box
- 3...Electric actuator
- 4...Electric actuator with gear box
- 9...Without control – bare shaft

M – MATERIAL OF BODY

- 0...Stainless steel
- 2...Alloy steel
- 5...Carbon steel

A – ANTISTATIC DESIGN